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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/674,570 | 09/30/2003 | Christopher A. Michaluk | CPM 02073 (3600-404-01) | 5108 |
| 7590 | 12/20/2004 | | EXAMINER | |
| Martha Ann Finnegan, Esq. Cabot Corporation 157 Concord Road Billerica, MA 01821-7001 | | | VERSTEEG, STEVEN H | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 1753 | |

DATE MAILED: 12/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/674,570

Applicant(s)

MICHALUK ET AL. 

Examiner

Steven H VerSteeg

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 September 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 9/9/04.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☒ Other: IDS mailroom date 11/14/03.

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: “here” should be “Here” on page 7 at line 8.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-6, 9, 14-21, 26, and 27 are rejected under 35 U.S.C. 102(b) as being anticipated by WO 02/42513 A2 to Cabot Corporation (Cabot).
4. For claim 1, applicant requires a method to recover components of a sputter target assembly comprising a tantalum or niobium target bonded to a backing plate wherein the method comprises hydriding the target to form tantalum nitride or niobium nitride and separating the hydride from the backing plate.
5. Cabot discloses a sputtering target of tantalum or niobium or alloys thereof (pg. 4, l. 22-24) that can be recovered from the backing plate by hydriding the metal and separating it from the backing plate (pg. 13, l. 26-30).
6. For claims 2 and 16, Applicant requires the target to be an eroded target. For claim 3, Applicant requires it to be an alloy target. As noted above, the target can be an alloy and is eroded.

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7. For claim 4, Applicant requires the target to be uneroded. As not all of the material has been eroded, it is considered that the uneroded material is hydrided and then separated.
8. For claim 5, Applicant requires converting the hydride back to either tantalum or niobium after separating. Cabot discloses removing the hydrogen from the resulting hydride (pg. 13, l. 31-33).
9. For claim 6, Applicant requires reducing the hydride to powder and then converting it to tantalum or niobium powder. Cabot discloses the limitation (pg. 13, l. 31-33).
10. For claim 9, Applicant requires converting by heating under vacuum to convert the hydride to the metal. Cabot discloses the limitation (pg. 13, l. 31-33).
11. For claim 14, Applicant requires the tantalum or niobium to be melted into an ingot. Cabot discloses that the target will be in ingot form (pg. 6, l. 18-19).
12. For claim 15, Applicant requires a tantalum hydride or niobium hydride located onto a backing plate. As noted above, Cabot discloses the limitation.
13. For claim 17, Applicant requires the backing plate to comprise copper. For claim 18, Applicant requires the backing plate to comprise copper. Cabot discloses the backing plate to be copper (pg. 11, l. 31-33).
14. For claims 19 and 20, Applicant requires diffusion bonding, explosion bonding, electron beam welding, inertia welding, or combinations thereof to bond the backing plate to the target. For claim 21, Applicant requires the bonding to be by mechanical means. Cabot discloses the limitation (pg. 11, l. 33-34).
15. For claims 26 and 27, Applicant requires the backing plate to be hydrided. Because copper is utilized, it is inherent that the backing plate is hydrided.

Claim Rejections - 35 USC § 103

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

17. Claims 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 02/42513 A2 to Cabot Corporation (Cabot).

18. For claim 12, Applicant requires separating by mechanical means. For claim 13, Applicant requires separating by scraping, grinding, grit blasting, or combinations thereof.

19. Cabot does not disclose the separation method, but does state that conventional means may be used to separate the target and backing plate. Cutting the ingot is disclosed in Cabot and is a method of separating a piece of target from an ingot. It is a mechanical method and would involve some scraping of the blade on the ingot.

20. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Cabot to utilize cutting to separate the backing plate and target because conventional means may be used and cutting is a conventional method for separating pieces.

21. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over WO 02/42513 A2 to Cabot Corporation (Cabot) in view of US 5,693,203 to Ohhashi et al. (Ohhashi).

22. For claim 22, Applicant requires an interlayer between the hydride and the backing plate.

23. Cabot is described above, but does not disclose the use of an interlayer.

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24. Ohhashi discloses that utilizing an interlayer between the target and the backing plate is beneficial because it prevents deterioration in quality characteristics (col. 4, l. 36-60).

25. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Cabot to utilize an interlayer between the target and the backing plate because of the desire to prevent deterioration in quality characteristics.

26. Claims 7, 8, 10, 11, and 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 02/42513 A2 to Cabot Corporation (Cabot) in view of US 2002/0041819 A1 to Kumar et al. (Kumar).

27. For claim 7, Applicant requires recovering the backing plate separated from the target. For claim 8, Applicant requires cleaning, polishing or both to the backing plate.

28. Cabot is described above, but does not specifically disclose recovering the backing plate.

29. Kumar discloses that copper can also be recovered by hydriding [0012].

30. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Cabot to hydride the copper and recover it as well because of the knowledge that copper can be recovered from hydriding.

31. In so recovering the backing plate material, the backing plate would then be cleaned, just as the target (pg. 6, l. 18-19).

32. For claim 10, Applicant requires the heating to be 800-1000 Celsius. For claim 11, the temperature is about 850 Celsius. Kumar uses a temperature of 950 Celsius (Example 1), which is about 850 Celsius.

33. For claim 23, Applicant requires hydriding the backing plate during hydriding. As noted above, hydriding the backing plate to recover it is obvious. The backing plate would then be

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processed as the target would be (i.e. power form) as is required by claim 25. Regarding the separating required by claim 24, the limitation is met as taught above.

General Information

For general status inquiries on applications not having received a first action on the merits, please contact the Technology Center 1700 receptionist at (571) 272-1700.

For inquiries involving Recovery of lost papers & cases, sending out missing papers, resetting shortened statutory periods, or for restarting the shortened statutory period for response, please contact Denis Boyd at (571) 272-0992.

For general inquiries such as fees, hours of operation, and employee location, please contact the Technology Center 1700 receptionist at (571) 272-1300.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven H VerSteeg whose telephone number is (571) 272-1348. The examiner can normally be reached on Mon - Thurs (6:30 AM - 5:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam X Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Steven H VerSteeg
Primary Examiner
Art Unit 1753

shv
December 13, 2004